

A Novel SLE-LDTD-MS/MS Method for the Screening of NBOMe Designer Drugs in Oral Fluid

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NBOMes are a class of novel psychoactive substances (NPS) marketed as “legal highs.” NBOMes are derived from substituted phenethylamines, known as the 2C series. NBOMes contain a 2-methoxybenzyl on the nitrogen backbone of the 2C series, which is believed to cause an increase in potency. NBOMes are primarily administered sublingually via blotter paper and can be confused for and sold as LSD. NBOMes can cause hallucinations, tachycardia, agitation, seizures, and death. Oral fluid is an emerging biological specimen used in drug detection. Insufficient data exists surrounding NPSs in this medium, however, sample collection is noninvasive and primarily contains the parent compound, making it the ideal specimen for analysis compared to blood or urine. Fortified oral fluid samples were spiked with varying concentrations of a mixture of 8 NBOMes and submitted Phytronix for a blind study. Samples were extracted using solid-supported liquid extraction (SLE) and analyzed by laser diode thermal desorption tandem mass spectrometry (LDTD-MS/MS). The results demonstrated a viable method with a high level of sensitivity. LLOQ values were determined to be 0.5ng/mL for the assay. The method was precise and reproducible with percent coefficient of variation of less than 10% (n=4) and linearity greater than 0.99 for all analytes.